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EXAMINER

LEE, BENJAMIN C

ART UNIT

PAPER NUMBER

2632

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24

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/396,352

Applicant(s)

TUMER, TUMAY O.

Examiner

Benjamin C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Status

1. **Claims 27-74** are pending.

Claim Objections

2. **Claims 29-31** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Since claim 27 already recite "a first dipole antenna for receiving radio wave energy" and "a second dipole antenna for transmitting information from the integrated circuit", claims 29-31 which depend on claim 27 do not further limit the subject matter of claim 27.

Claim Rejections - 35 USC § 103

3. **Claims 27-32, 34-36, 40, 42-43, 48-52, 54-56, 60, 62-63, 68-70 and 72** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll (US pat. #4,857,893) in view of Moskowitz et al. (US pat. #5,528,222).

1) In considering claim 28:

a) Carroll discloses the claimed identification tag for application to objects (col. 3, lines 11-20) comprising in combination: an application specific integrated circuit on a die (98 of Figs. 9A-9B) having: a signal receiving system for receiving data containing information and programming into an into an integrated circuit, and a data processing system for reading out information from the integrated circuit (col. 3, lines 37-57; col. 9, lines 31-68; and col. 11, lines 17-27); an antenna (20) for receiving radio wave energy (col. 6, lines 13-18) and transmitting

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information from the integrated circuit to a receiver (12 of Fig. 1) not located on the die; and a power storage means for storing radio wave energy received by the antenna and for supplying energy to the integrated circuit (C1 according to col. 7, line 58 to col. 8, line 7 and col. 6, lines 38-43), wherein all components are located on the die (Figs. 9A-9B and col. 11, line 11 to col. 12, line 51);

except:

b) that the antenna is in the form of the claimed dipole antenna.

While Carroll discloses using a looped antenna, Moskowitz et al. teaches the known alternative use of dipole (e.g. dipole and folded dipole) and looped antennas on a tag (col. 4, lines 29-31; col. 3, lines 40-41 and 55-56; and Figs. 4-6 and 9).

In view of the teachings by Carroll and Moskowitz et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that either of the alternative dipole or looped antennas can be used in a tag such as taught by Carroll in light of the teaching by Moskowitz et al. based on intended system design criteria and preference.

2) In considering claims 27 & 29-32, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in the consideration of claim 28, including:

--the claimed first and second dipole antenna for receiving and transmitting, respectively (Fig. 5 of Moskowitz et al.)

While Carroll shows using a single antenna for transmitting and receiving requiring sharing of the antenna, Moskowitz et al. demonstrated the single antenna's well known alternative of using separate transmitting and receiving antennas (Figs. 4-6). It would have been

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obvious to one of ordinary skill in the art at the time of the claimed invention either alternative can be used in a system such as taught by Carroll and Moskowitz.

3) In considering claims 49-52, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28 above and also according to col. 1, lines 26-28 of Moskowitz et al.

4) In considering claims 54-55, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed write control component contains at least one non-volatile memory section for storing information (PROM & EEPROM according to col. 9, lines 52-60 of Carroll).

5) In considering claims 34-35, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claims 54-55 above.

6) In considering claim 56, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed at least one multiplexer controls flow of information and data (30 in Fig. 4 of Carroll showing 82-85 with single input and multiple outputs, and vice versa).

7) In considering claims 36, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 56 above.

8) In considering claim 60, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed wherein information transmitted is in analog form (Fig. 5A and analog transmitting circuit of Fig. 2 of Carroll).

9) In considering claim 40, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 60 above.

10) In considering claims 62-63, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed at least one clock generator circuit (28 in Fig. 2 and col. 4, lines 55-57 of Carroll) and at least one shift register circuit (76 in Fig. 4 of Carroll).

11) In considering claims 42-43, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claims 62-63 above.

12) In considering claim 68, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed said integrated circuit contains circuits for logic (AND & OR/NOR logic gates used in Fig. 4 of Carroll), sequencing (register 76 in Fig. 4 of Carroll) and switching (gated switching in Fig. 4 of Carroll).

13) In considering claim 48, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 68 above.

14) In considering claim 70, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, plus the consideration of claim 53 regarding use of microwaves above, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that various radio waves in the microwave band including the frequency of between 10 GHz and 16 GHz can be chosen for a system such as taught by Carroll and Moskowitz et al.

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based on and dictated by design criteria/preference, FCC regulation, intended application, environmental/background interference, etc.

15) In considering claim 69, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 70 above.

16) In considering claim 72, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, including:

--the claimed monolithic circuit (line 17 of Abstract of Carroll).

4. **Claims 33, 37, 53 and 57** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Moskowitz et al. and Auerbach et al. (US pat. #6,002,343).

1) In considering claims 53 & 57, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, except:

--specifying the claimed energy can be received from sources including microwaves; and wherein at least one pulse generating circuit is used.

While Carroll did not specify whether the radio frequency signals are of the low frequency type or microwaves, it has been known to use microwave pulses (which inherently are generated by a pulse generating circuit) as a specific type of radio frequency signals for energizing a tag in passive tag systems intended for short-range communication, such as indicated by Auerbach et al. (col. 1, lines 15-22). In view of the teachings by Carroll, Moskowitz et al. and Auerbach et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that microwave pulses can be specifically used as the radio frequency signals for energizing the tag in a system such as taught by Carroll and Moskowitz in light of the teaching of Auerbach et al. without unexpected results.

2) In considering claims 33 & 37, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claims 53 & 57 in view of Auerbach et al.

5. **Claims 38-39, 41, 58-59, 61, 71 and 73-74** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll (US pat. #4,857,893) in view of Moskowitz et al. in view of Kip et al. (US pat. #5,105,190).

1) In considering claim 58, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, except:

-- the claimed wherein information received is in analog .

Carroll teaches that the tag memory is programmable (PROM & EEPROM according to col. 9, lines 52-60). In the same art, Kip et al. teaches allowing the tag to receive a programming information signal to program the tag memory (Abstract and Figs. 2-3 where Fig. 3b shows receiving modulated information for programming the tag code). In view of the teachings by Carroll, Moskowitz et al and Kip et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that programming the tag memory to encode tag identification in a system such as taught by Carroll and Moskowitz et al. can be done via a wireless signal from the interrogator such as taught by Kip et al., wherein since the tag or Carroll and Moskowitz communicates in analog form, such programming signal/information should likewise be in analog form.

2) In considering claim 38, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 58 above.

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3) In considering claim 61, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, except:

-- the claimed wherein information transmitted is in digital form.

Carroll teaches that the tag uses an analog type modulator/transmitter (22 of Fig. 2). In the same art, Kip et al. teaches an alternative digital type modulator/demodulator/transmitter (1, 9, 23 of Fig. 2) that transmits in digital form the encoded tag response signal back to the interrogator (7, 9 of Fig. 2). In view of the teachings by Carroll, Moskowitz et al and Kip et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that an analog communicating coded tag such as taught by Carroll and Moskowitz et al. can be constructed as a digital communicating coded tag by using a digital transmitter such as taught by Kip et al. as an alternative without unexpected results.

4) In considering claim 41, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 61 above further in view of Kip et al.

5) In considering claim 59, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, plus the consideration of claims 58 and 61 above in view of Kip et al., wherein:

In view of the teachings by Carroll, Moskowitz et al and Kip et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a coded tag such as taught by Carroll and Moskowitz et al. can be constructed as a digital communicating coded tag by using a digital communication components such as taught by Kip et al. as an alternative, and furthermore that programming the tag memory to encode tag identification in a

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system such as taught by Carroll and Moskowitz et al. can be done via a digital wireless signal from the interrogator such as taught by Kip et al., wherein the received signal is in a format corresponding to the transmitted signal, which is digital.

6) In considering claim 39, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 59 above.

7) In considering claim 71, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 58 or claim 59 in view of Kip et al. wherein the tag further receives analog or digital information/data for programming the tag, including:

--the claimed monolithic circuit (line 17 of Abstract of Carroll).

8) In considering claim 73, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 58 or claim 59 in view of Kip et al. wherein the tag further receives analog or digital information/data for programming the tag by storing and processing data and making decisions and taking actions, including:

--the claimed data processing system (100, 102 and 104 in Fig. 9A of Carroll).

9) In considering claim 74, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, plus the consideration of claim 73 further in view of Kip et al.

6. **Claims 44 and 64** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Moskowitz et al. in view of Turner et al. (US pat. #5,793,305).

1) In considering claim 64, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 51, except:

-- the claimed back scatter type dipole antenna.

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While the tag having dipole antenna taught by Carroll and Moskowitz is not of the back-scatter type, back-scattering as a tag response signal has been known in the art for tags having dipole antennas, such as taught by Turner et al. (col. 10, lines 6-10 and col. 11, lines 8-11). In view of the teachings by Carroll, Moskowitz et al. and Turner et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a back scatter type dipole antenna and back scattering such as taught by Turner et al. can be adopted by a tag such as taught by Carroll and Moskowitz et al. for the known lower power consumption associated with backscattering that makes use of the interrogation signal in the tags response instead of having to generate/transmit a completely separate response signal from the tag so that power requirements are more easily met in the system design criteria.

2) In considering claim 44, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 31, plus the consideration of claim 64 above in view of Turner et al.

7. **Claims 45 and 65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Moskowitz et al. and Roth et al. (US pat. #5,272,117).

1) In considering claim 65, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, except:

--the claimed wherein the integrated circuit (IC) is built onto different materials selected from the group consisting of silicone, germanium, GaAs, sapphire, or diamond.

Carroll teaches using a chip substrate wherein the integrated circuit and various other tag components are built onto (Figs. 9A-9B), while various materials including silicone, germanium, GaAs, and sapphire or diamond have been known for use in constructing IC or semiconductor substrates or supports, such as taught by Roth et al. (col. 2, line 67 to col. 3, line 14). It would

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have been obvious to one of ordinary skill in the art at the time of the claimed invention that such conventionally used materials can be used as the chip die material the device such as taught by Carroll and Moskowitz et al. is built onto in view of Roth et al.

2) In considering claim 45, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 65 above further in view of Roth et al.

8. **Claims 46-47 and 66-67** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Moskowitz et al. in view of Schoenian et al. (US pat. #5,748,106).

1) In considering claims 66-67, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, except:

--the claimed wherein the integrated circuit contains test and monitoring control circuitry or points and pads.

However, the concept of testing and monitoring electronic circuits and components on devices either via onboard circuitry or via external devices using testing and monitoring points/pads, in order to ensure the circuits/components are working properly has been well known in the electronic device art. Schoenian et al. further demonstrated that it has been known to test/monitor the circuits on an electronic tag (col. 2, lines 1-13 and Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include test and monitoring control circuitry or points and pads in an electronic tag device such as taught by Carroll and Moskowitz in order to ensure proper operations such as taught by Schoenian et al. by allowing testing using either on-board or external testing/monitoring circuitry.

2) In considering claims 46-47, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 27, plus the consideration of claims 66-67 above further in view of Schoenian et al.

Response to Arguments

9. Applicant's arguments with respect to claims 27-74 have been considered but are moot in view of the new ground(s) of rejection. The above new grounds of rejection have been made over Carroll in view of new secondary references having earlier effective dates. It is noted that previously cited reference Murdoch (US pat. #5,153,583) which had been used to make double rejection in addition to rejection using Carroll, has not been used in the current rejection due to time constraints, but nevertheless constitutes a strong primary reference/teaching similar to Carroll, and disclosed various known/obvious features of the claimed invention including single chip design, passive transponding (obtaining and storing energy from the interrogator signal), the known alternatives of using single and separate transmitting/receiving antennas, using interrogator for wireless programming of the tag, digital communication (switching transistor T in Fig. 4), etc. Applicant should also keep Murdoch in mind when drafting subsequent amendments in order to facilitate prosecution of the examining process.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Hecht et al. US pat. #5,515,053

--A similar tag receiving coded information/data from the interrogator and using a comparator (40 of Fig. 1) as a TEST to monitor whether the tag is being communicated with.

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2) Lee, Jr. et al., US pat. #5,731,754


--A known teaching that back-scatter tags use lower power (col. 3, line 61 to col. 4, line 2).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (703) 306-4223.

The examiner can normally be reached on Mon -Fri 11:00Am-7:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (703) 308-6730. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.


Benjamin C. Lee
Primary Examiner
Art Unit 2632

B.L.
July 27, 2003